

IN THE CLAIMS

1 (Currently Amended). A method comprising:
using an amine substituted cyclodisilazane ~~a four-membered ring of alternating nitrogen and silicon atoms as a silicon precursor~~ to form a silicon nitride film at a temperature less than approximately 500°C.

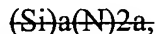
Claims 2-6 (Canceled).

7.(Original). The method of claim 1 including using cyclodisilazane including an organic group containing one to approximately 20 carbon atoms.

Claims 8 and 9 (Canceled).

10 (Original). The method of claim 1 including forming a silicon nitride film tuned to have a specific impurity profile.

11 (Currently Amended). A method comprising:
using 1,2,4,5-tetraaza-3,6-disilacyclohexane as a silicon precursor to form ~~[[a]]~~ silicon nitride film at a temperature less than ~~approximately 500°C., said silicon precursor being a substituted ring comprising the general formula:~~



~~where silicon is bound to two nitrogens,~~

~~where said nitrogens are bound to said silicon and nitrogen, and~~

~~where a is an integer greater than or equal to one.~~

Claim 12 (Canceled).

13 (Original). The method of claim 11 including using a silicon precursor comprising the general formula:



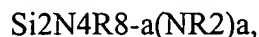
where X is a halogen,

where each R is selected from the group consisting of a hydrogen, a halogen, an amine, an alkyl, an aryl, a silyl and an organic group having one to approximately twenty carbons, and

where a is an integer less than or equal to eight.

14 (Original). The method of claim 11 including using a halogenated derivative of 1,2,4,5-tetraaza-3,6-disilacyclohexane as the silicon precursor.

15 (Original). The method of claim 11 including using a silicon precursor comprising the general formula:



where each R is selected from the group consisting of a hydrogen, a halogen, an amine, an alkyl, an aryl, a silyl and an organic group having one to approximately twenty carbons, and

where a is an integer less than or equal to four.

16 (Original). The method of claim 15 including using a silicon precursor selected from the group consisting of 3,6-bis(dimethylamino)-1,4-ditertiarybutyl-2,5-dimethyl-1,2,4,5-tetraaza-3,6-disilacyclohexane and 3,6-bis(tertiarybutylamino)-1,4-ditertiarybutyl-1,2,4,5-tetraaza-3,6-disilacyclohexane.

17 (Original). The method of claim 11 including using a silicon precursor comprising the general formula:



where each R is selected from the group consisting of a hydrogen, a halogen, an amine, an alkyl, an aryl, a silyl and an organic group having one to approximately twenty carbons.

18 (Original). The method of claim 17 including using a silicon precursor selected from the group consisting of 1,2,4,5-tetratertiarybutyl-1,2,4,5-tetraaza-3,6-disilacyclohexane, 3,6-

divinyl-1,4-ditertiarybutyl-2,5-dimethyl-1,2,4,5-tetraaza-3,6-disilacyclohexane, 3-phenyl-1,4-ditertiarybutyl-1,2,4,5-tetraaza-3,6-disilacyclohexane, 1,2,4,5-tetramethyl-1,2,4,5-tetraaza-3,6-disilacyclohexane, and 1,2,3,3,4,5,6,6-octamethyl-1,2,4,5-tetraaza-3,6-disilacyclohexane.

19 (Original). The method of claim 11 further including using a nitrogen precursor selected from one of ammonia, a hydrazine or a substituted hydrazine.

20 (Original). The method of claim 19 further including combining said silicon precursor and said nitrogen precursor in a premixed cocktail with an optional solvent.

Claim 21 (Canceled).

22 (Original). A method comprising:

combining a silicon source precursor comprising hydrazine including at least two silyl substitutions and a nitrogen precursor; and
forming a silicon nitride film.

23 (Original). The method of claim 22 including combining a silicon source precursor comprising the general formula:



where each R is selected from the group consisting of a hydrogen, a halogen, an amine, an alkyl, an aryl, a silyl and an organic group having one to approximately twenty carbons, and

a is two, three, or four.

24 (Original). The method of claim 22 including combining a silicon source precursor selected from the group consisting of 1,2-disilylhydrazine, 1,1,2-trisilylhydrazine, 1,1,2,2-tetrasilylhydrazine, 1,2-bis(trimethylsilyl)-1,2-ditertiarybutylhydrazine and 1,2-bis(trimethylsilyl)-1,2-diphenylhydrazine.

25 (Original). The method of claim 22 including combining said silicon source precursor and a nitrogen precursor from the group consisting of ammonia, hydrazine and a substituted hydrazine.

26 (Original). The method of claim 25 further including premixing said silicon source precursor and said nitrogen precursor in a cocktail with an optional solvent.

27 (Original). The method of claim 22 including tuning said silicon nitride film to have a desired impurity profile.

28 (Original). The method of claim 22 further including heating a deposition reaction chamber to a temperature that is less than approximately 500°C.

Claims 29-36 (Canceled).